

## An educator aboard the *JOIDES Resolution* during Mediterranean Outflow Expedition

IODP Mediterranean Outflow Expedition drilled five sites in the Gulf of Cádiz and two sites off the west Iberian margin from November 2011 to January 2012. In total, nearly 5.5 km of core were recovered from a region never before drilled for scientific purposes. The Gulf of Cadiz was targeted for drilling as a key location for the investigation of Mediterranean Outflow Water (MOW) through the Gibraltar Gateway and its influence on global circulation and climate.

It was a privilege to participate as Education Officer and work side by side with the Science Party and crew of the *JOIDES Resolution (JR)* on this expedition. While the scientists and techs

kept the labs running 24/7 and the crew and catering staff kept us afloat, operational, fed and clean, I had a special and challenging task. During the expedition I co-ordinated and facilitated the education and outreach activities so we could share the life aboard, and the exciting and cutting edge science done on the ship, with the outside world. Therefore, I was focused on promoting sea-going research and the science goals of the expedition through the *JR's* education web portal (*http://www.joidesresolution.* 

org/). Almost 70 blog posts in English, Portuguese, French, Spanish, and Japanese were added to the site by five authors. I also took advantage of the social networking tools by posting daily on the ship's Twitter and Facebook pages. Subjects varied, but included shipboard life, expedition progress, drilling operations and sampling procedures. In addition, four outside blogs/websites were published by onboard scientists (e.g. Lucas Lourens's blog posted at http://www.uu.nl/faculty/geosciences/ NL/Actueel/dossiers/expeditiemediterraneanoutflow/Pages/ default.aspx.

During my shift time I had the opportunity to collaborate with and help the scientists in the lab, and learn from them several aspects of the science beyond the expedition. That scientific



background will allow me to develop classroom activities with my students and fellow teachers that relate to the expedition's scientific objectives and general science by using real data.

However, the most outstanding task I had while on board was the organisation of live video conferences from the ship to schools, universities and science museums from different countries *(photo I)*. With the assistance of scientific, technical and engineering staff, we conducted 31 live ship-to-shore video events, reaching more than 1200 participants (from Canada, Japan, France, Portugal, Spain, UK and USA) with ages ranging from 3 to 82 years old. The excitement of the participants during these events

can be assessed by comments such as "this was my first opportunity to learn through a video broadcast; it was really fun and interesting for us" and "when I heard the sound of the ship's rig-floor machines, I felt like being on the ship". This was made possible thanks to the Deep Earth Academy providing live video broadcasts with the educators and scientists on board the ship during every expedition.

Another important aspect of my participation in this expedition,

which contributed to the promotion of IODP Education and Outreach activities among students, teachers and the general public, were the tours of the ship during the *JR*'s port call in Ponta Delgada and Lisbon. During the two days after the end of the expedition about 600 people visited the ship and among them were my students, colleagues (*photo 2*), friends and family. It was great to see everyone's enthusiasm and specially the smiles and joy on the students' faces during the tours we prepared for them. I hope one day at least one of them will be inspired to sail on the *JOIDES Resolution*.

Hélder Pereira, Science Teacher at Escola Secundária de Loulé, Algarve (Portugal)



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## Teacher at Sea Program - Expedition 302 - ACEX A Teacher's Experience of Ocean Drilling

n the beginning of last summer something very special Lhappened to me, I was selected to take part in the Arctic Coring Expedition (ACEX). Being a teacher in an upper secondary school in Sweden (Järfälla NT-Gymnasium) opportunities like these to have first hand contact with science are rare and this expedition in particular seemed very interesting both from a scientific viewpoint and because of its setting in the Arctic Ocean. Time for preparation was short however, and there was only barely enough time to manage health controls and insurances and to study the world of oceanography. Even though I am quite a curious science teacher and try my best to keep up to date on new research, I found that this field was largely unknown to me. In fact, I did not even know about ECORD prior to my involvement and one of Sweden's major encyclopaedias does not yet list IODP as a searchable word. My studies were very rewarding and even before I set foot upon the expedition ships I had learnt a lot about the oceans and climate research that was directly applicable in my school classes.

The expedition itself was of course quite an experience and I was allowed to take part in most of the activities from the drilling to the analyses and the science meetings and ice management. Dealing with the ice on this mission felt like a science in itself and it was very interesting to follow, especially when new methods of ice reconnaissance were tested and evaluated. There were also a lot of questions in my mind about how the actual ocean drilling was done that were answered when I was on board the drill ship and could see the process myself. Although my theories of how it was done were close to the truth, the realities of being on the drill site were a lot harder to imagine without actually being there. I was amazed at the wide range of different analyses available to study the sediments, from simple colour comparisons to more advanced methods like different isotope measurements. Still, maybe the contact with the scientists themselves, talking to them about their research and their lives as scientists and watching their ways of presenting their findings was what I appreciated the most.

In all, I have returned to my school loaded with a lot of material useful for many different situations in the education at home. Samples from diatoms in the Arctic ice have provided comparisons between life in Swedish and Arctic waters. Pictures and movie clips from the Arctic have been invaluable in explaining the role of the Arctic in global climate and the Arctic ecology and also for raising the interest of my students on many topics around the oceans and ocean drilling. Maps have been useful in many ways including among other plate tectonics, an issue relevant to the expedition in studying the geological origin of the drill site on the Lomonosov underwater mountain range. The list of course goes on from there and I have also been giving talks about the expedition to different interested groups outside of the school world. Although the mission itself is over, I think my own mission of turning information from the cruise into school curriculum material is something that I will be continuously doing for a lot of time to come.

## Erik Zetterberg, Science and technology teacher Järfälla NT-Gymnasium, Sweden



*In front of Vidar Viking during refueling (Kathy Couchon © IODP).* 



Ready for ice reconnaissance in front of helicopter (Kathy Couchon © IODP).



Investigating agglutinated foraminifera through the microscope (Kathy Couchon © IODP).

The central goals of the IODP Teacher at Sea Program include 1) providing teachers with an opportunity to participate in seagoing research experiences, 2) translating scientific results into useful teaching resources and 3) distributing these resources to classrooms. During the Arctic Coring Expedition (IODP 302), Erik Zetterberg, the European teacher selected for the IODP Expedition 302, has found financial and educational supports provided by ECORD and ESSAC respectively.

Watch the ECORD website for the next opportunity for a teacher to participate in IODP science! www.ecord.org/pi/public-info